

A Holiday in the East Pyrenees, June-July 1970, with Notes on the Lepidoptera observed

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(Concluded from p. 277)

Observations and Explanations of List of Species

In the following list, I follow Higgins & Riley for the nomenclature of the Rhopalocera, but in a few cases have followed Dufay for the name of the local race. For the moths I have followed Boursin, Dufay and Herbalot. Pyralidae and Micro-Lepidoptera are not listed, though a few were taken. Identifications were in nearly every case based on specimens taken and studied during the following months, genitalia examinations being made where appropriate; a few exceptions, well-known species seen, but of which no specimen was retained, are listed in [] brackets.

Localities are abbreviated as follows: the name is followed by the altitude in metres and the date on which visited:—

- Ang.=Les Angles, 1600, 3.vii.
 Bou.=Lac des Bouillouses, 1900-2100, 1-13.vii.
 Can.=Canigou, Les Cortalets, 1800-2200, 26.vi.
 Car.=Pic Carlit, lower eastern slopes, 2200, 5.vii.
 Cas.=Casteil, nr. Vernet-les-Bains, 700, 17-30.vi.
 Cat.=Cattlar, near Prades, 500, 18 and 28.vi.
 Est.=Estagel, Corbières, 200, 17.vi, 15.vii.
 Eyn.=Val d'Eyne, Cerdagne, 1500, 10 and 13.vii.
 Jou.=Col de Jou above Casteil, 900-1200, 21, 23 and 29.vi.
 Lag.=La Llagone, between Mont Louis and Col de la Quillane, 1700, 3.vi.
 Lou.=Mont Louis: Forêt de Barrès, 1650, 1.vii., or slopes below town, 1400, 22.vi., or near Planes, 1570, 7.vii.
 Mat.=Matamale Barrage, 1500, or M. village, 1450, 3.vii.
 Mil.=Millas, 150, 17.vi.
 Rom.=Font Romeu, forest above town, 1800, 2.vii.
 Ver.=Vernet-les Bains, Crêtes de Fully, 600, 19.vi.
 Vil.=Villefranche de Conflent, Cady valley, 450, 17.vi.
 Other abbreviations used which need explaining are:—
 det. B=determined by C. Boursin.
 det. H.=determined by C. Herbalot.
 d.g.Pr.=determination by self after genitalia study, serial number of Preparation given.
 l.b.=larva bred, imago otherwise not seen.
 l.s.—=larva seen but not bred, imago not seen.

List

PAPILIONIDAE

- Iphiclides podalirius* (L.) ssp. *feisthameli* Dup. Ver.
Parnassius apollo (L.) ssp. *chrysophorus* Fruhst. Cas.; ssp. (?) *portensis* Ruet. Eyn.
Parnassius mnemosyne (L.) subsp. *vernetanus* Fruhst. Bou.

PIERIDAE

- Aporia crataegi* (L.) ssp. *hyalina* Roeb. Cas. Jou.
Pieris brassicae (L.) Bou.
Pieris napi (L.) Can.
Pieris rapae (L.) Jou. Bou. Car.
Pieris manni Mayer ssp. *hemiandegava* Verity Cat.
Euchloe ausonia Hübn. Rom. [Bou.]
Anthocharis cardamines (L.) Cas. [Lou.]
Anthocharis belia (L.) ssp. *euphenoides* Stgr. Jou.
Colias crocea Geoff. Ver.
Colias australis Verity Est. Eyn.
 [Gonepteryx *rhamni* (L.) Can.]
Leptidea sinapis (L.) Est. Cat. Mil. Ver. Cas. Jou. Lou.

NYMPHALIDAE

- Limenitis reducta* Stgr. Vil. Cas. Eyn.
Limenitis camilla (L.) Cas.
Nymphalis polychloros (L.) Can.
 [Vanessa *cardui* (L.) Can. Jou. not before 23.vi.]
 [Aglais *urticae* (L.) Jou. from 21.vi. Can.]
Polygonia c-album (L.) Cas. Jou.
 [Argynnis *paphia* (L.) Ver. Cas.]
Mesoacidalia aglaja (L.) ssp. *locupleta* Verity Cas. Jou.
Fabriciana adippe D. & S. Jou.
Issoria lathonia (L.) ssp. *attenuata* Sag. Jou. Can. Eyn.
Brenthis daphne D. & S. Cas.
Brenthis ino Rott. Eyn. Lou.
Clossiana selene D. & S. Cas. d.g.Pr. 1631, Jou. Eyn. d.g.Pr. 1634, Lou. Lag.
Clossiana euphrosyne (L.) Jou. Bou. Lou.
Melitaea cinxia (L.) Jou. Eyn.
Melitaea phoebe D. & S. Cas. Jou.
Mellicta athalia ssp. *celadussa* Fruhst. Cas. Jou. Eyn.
Mellicta parthenoides Kef. Cas. Jou. Rom. Lou. Bou.
Euphydryas aurinia ssp. *debilis* Ob. Ang. Mat. Bou. Car.

SATYRIDAE

- Melanargia galathea* (L.) ssp. *lachesis* Hübn. Esp. Ver. Cat. Mil. Eyn.
Hipparchia alcyone D. & S. Est.
Satyrus ferula F. ssp. *cordula* Scop. Eyn.
Erebia epiphron Knoch. ssp. *fauveaui* de Lesse Bou.
Erebia triaria de Prun. ssp. *granjana* Ob. Bou. Ang. Car. d.g.Pr. 1640, Rom.
Erebia oeme Hübn. ssp. *pacula* Fruhst. Rom. Eyn. d.g.Pr. 1632, Lou. Ang. Bou.
Erebia meolans de Prun. ssp. *almanda* Fruh. Jou. d.g.Pr. 1633.
Maniola jurtina (L.) Vil. Cas.
Aphantopus hyperanthus (L.) Cas.
Pyronia bathseba F. ssp. *pardilloi* Sag. Mil. Cat.
Coenonympha pamphilus (L.) Rom. Bou.
Coenonympha arcania (L.) ssp. *cephalus* Geoffr. Cas. Jou. Lou. Eyn.
Coenonympha glycerion Bork. Eyn.

Pararge aegeria (L.) Vil.

Lasiommata maera (L.) ssp. *adrasta* Ill. Vil. Jou. Eyn.

NEMEOBIIDAE

Hamearis lucina (L.) Bou.

LYCAENIDAE

Nordmannia ilicis Esp. Cat. Cas. Ver.

Strymonidia spini D. & S. Cat.

Callophrys rubi (L.) Jou. Lou. Bou.

Lycaena helle D. & S. ssp. *deslandesi* Hemm. Bou.

Lycaena phloea (L.) Jou.

Heodes virgaureae (L.) ssp. *pyrenaeicola* Graves Cas. Eyn.

H. alciphron Rott. ssp. *veronius* Fruh. Ver.

Palaeochrysophanus hippothoe (L.) ssp. *mirus* Verity Mat. Eyn.

Lampides boeticus (L.) Ver.

Everes alcetas Hoff. Vil.

Cupido minimus Fuessl. Vil. Jou. Lou.

Glaucopsyche alexis Poda Cas.

Scolitantides orion Pall. Cas.

Plebejus argus (L.) Vil. Cat. Rom. Lag. Eyn.

Cyaniris semiargus Rott. Cas. Jou. Lou. Mat. Room, Eyn.

Plebicula dorylas D. & S. (= *argester* Berg. Eyn.

Plebicula amanda Schneid. (= *icarius* Esp.) ssp. *pyrenaeorum*
Verity Mat. Eyn.

Lysandra coridon Poda subsp. *ruscinonis* Verity Eyn.

Lysandra bellargus Rott. Ver. Jou.

Polyommatus icarus Rott. Est. Cat. Cas. Ver. Jou. Bou.

HESPERIIDAE

Pyrgus malvoides El. & Ed. Cas. d.g.Pr. 1635. Jou. Bou. d.g.Pr.
1630.

Pyrgus probably *serratulae* Ramb. Jou. 1♀ Pr. 1636.

Spialia sertorius Hoff. ssp. *hibiscae* Hübn. Jou. d.g.Pr. 1639.

Thymelicus acteon Rott. ssp. *virescens* Ag. Cat. Cas.

Thymelicus lineola Ochs. Eyn.

Thymelicus sylvestris Poda Ver. Cas. Jou. Eyn.

Ochlodes venatus Brem. & G. ssp. *esperi* Verity Cas. Lou.

SPHINGIDAE

Celerio lineata F. ssp. *livornica* Esp. Bou.

Pergesa porcellus (L.) Cas. Bou.

LASIOCAMPIDAE

Lasiocampa quercus (L.) ssp. ? Bou.

Macrothylacia rubi (L.) Bou.

NOTODONTIDAE

Cerura vinula (L.) Cas.

Hoplitis milhauseri F. Cas.

Notodonta phoebe Siebert Cas.

Spatalia argentina D. & S. Cas.

Pterostoma palpina (L.) Cas.

Phalera bucephala (L.) Jou.

LYMANTRIIDAE

[*Lymantria dispar* (L.) Cat. l.s., Ver. l.s.]

ARCTIIDAE

- Eilema caniola* Hübner Cas. (det. H. de Toulgoët).
Euprepia striata (L.) Cas.
Diacrisia sannio (L.) Cas. Jou.
Spilosoma lubricipeda (L.) Cas.
Epicallia villica (L.) Cas.
Eucharia casta Esp. Bou.

CYMATOPHORIDAE

- Tethea ocularis* (L.) Cas.
Tethea or F. Cas.

NOCTUIDAE

- Agrotis simplonia* Geyer Bou. d.g.Pr. 1606.
Agrotis ipsilon (Hufn.) Cas. Bou.
Agrotis exclamationis (L.) Ver. Cas.
Ochropleura plecta (L.) Cas.
Noctua pronuba L. Cas. Bou.
Lycophotia porphyrea D. & S. (= *strigula* Thun.) Bou.
Amathes c-nigrum (L.) Cas.
Amathes triangulum Hufn. Cas.
Heliophobus reticulata Goeze Bou.
Polia hepatica Clerck (= *tincta* Brahm.) Cas.
Mamestra contigua D. & S. Cas. Vil.
Mamestra pisi (L.) Bou.
Mamestra bi-ren Goeze (= *glauca* Kleem.) Bou.
Mamestra bicolorata Hufn. ssp. *obscura* Str. det. B. Bou. d.g.Pr. 1649, 1655.
Hadena ruetimeyeri Boursin det. B. Bou.
Hadena compta D. & S. det. B. Cas.
Hadena confusa Hufn. (= *conspersa* D. & S.) det. B. Cas.
Hadena caesia D. & S. det. B. d.g.Pr. 1621 Cas. Bou.
Hadena tephroleuca Boisd. det. B. Bou.
Lasionycta nana Hufn. (= *dentina* D. & S.) Bou.
Mythimna unipuncta Haw. Cas.
Mythimna comma (L.) Bou.
Metopoceras canteneri Dup. det. B. Ver.
Blepharita adusta Esper Bou.
 [*Cucullia verbasci* (L.) l.s. Jou. Ver. Lou.]
Apatele aceris (L.) Cas.
Apatele auricoma D. & S. Bou.
Apatele euphorbiae D. & S. Bou.
Apamea crenata Hufn. (= *rurea* F.) Cas.
Mesapamea secalis (L.) Bou.
Oligia latruncula D. & S. Cas. d.g.Pr. 1618.
Caradrina selini Boisd. det. B. Ver.
Caradrina flavirena Guenee det. B. Ver.
Caradrina clavipalpis Scop. det. B. Cas.
Caradrina aspersa Ramb. det. B. Cas. d.g.Pr. 1622.
Hoplodrina ambigua D. & S. det. B. Ver.
Synthymia fixa F. Cat.
Hapalotis venustula Hübn. Cas.
Axilia putris (L.) Cas.

Pseudoips bicolorana Fuessly Ver.
Plusia chrysitis (L.) Cas.
Autographa iota (L.) Cas.
 [*Autographa gamma* (L.) Cas. Bou.]
Callistege mi Clerck Cas. Rom.
Ectypa glyphica (L.) Jou.
Phytomera viridaria Clerck Bou.
Rivula sericealis Scop. Ver.
Hypena proboscidalis (L.) Cas.

GEOMETRIDAE

Asthena albulata Hufn.
Hydrelia flammeolaria Hufn.
Spargania luctuata D. & S. Bou.
Minoa murinata Scop. Cas. Jou.
Calostigia pectinataria Knoch. Cas.
Lampropteryx suffumata D. & S. Cas. Bou.
Lyncometra ocellata (L.) Cas.
Coenotephria tophaceata D. & S. Cas.
Coenotephria nebulata (Tr.) Bou. d.g.Pr. 1643.
Chloroclysta truncata Hufn. Cas.
Cidaria fulvata Thunb. Cas.
Hydriomena furcata Thunb. Cas.
Hydriomena coerulata F. d.g.Pr. 1648 Cas. Bou.
Horisme vitalbata D. & S. Cas.
Eupithecia haworthiata Doub. Cas. det. H.
Eupithecia linariata F. Bou.
Eupithecia vulgata Haw. Bou. Cas. det. H.
Eupithecia castigata Hübn. Cas. det. H.
Perizoma alchemillata (L.) Can. Bou.
Perizoma albulata D. & S. Cas. Jou.
Euphyia picata Hübn. Cas.
Xanthorhoe spadicearia D. & S. Bou.
Xanthorhoe montanata D. & S. Cas. Bou.
Xanthorhoe fluctuata (L.) Cas.
Scotopteryx coarctaria D. & S. det. H. Cas.
Scotopteryx mucronata Scop. Ver. Cas. d.g.Pr. 1627.
Epirrhoe tristata (L.) Bou. d.g.Pr. 1641, Ang. Car.
Epirrhoe galiata D. & S. Cas.
Epirrhoe molluginata Hübn. Bou. d.g. 1644.
Campto gramma bilineata (L.) Vil.
Chesias rufata F. Bou.
Anaitis praeformata Hübn. Lou. Lag. Bou.
Odezia atrata (L.) Cas. Mat.
Sterrha ochrata Scop. Cat. d.g.Pr. 1653.
Sterrha luteolaria Const. Eyn. d.g.Pr. 1651.
Sterrha circuitaria Hübn. l.b. Cat.
Sterrha eburnata Wocke Cas.
Cyclophora annulata Schulze Cas.
Cyclophora puppillaria Hübn. Cas.
Scopula immorata (L.) Cas. Mat.
Scopula ornata Scop. Vil. Cas.
Scopula imitaria Hübn. Ver.

- Scopula lactata* Haw. Cas.
Rhodostrophia calabra Pat. Cas. d.g. Pr. 1623.
Rhodostrophia vibicaria Clerck Cas. d.g.Pr. 1626.
Lomaspilis marginata (L.) Cas.
Ligdia adustata D. & S. Cas.
Semiothisa notata (L.) Cas. d.g.Pr. 1656.
Semiothisa clathrata (L.) Vil. Jou. Lou.
Isturgia roraria F. subsp. *limbaria* F. Jou. Can. Bou.
Rhoptria asperaria Hübn. Cas. d.g.Pr. 1647
Petrophora chlorosata Scop. Cas.
Opisthograptis luteolata (L.) Cas.
Pseudopanthera macularia (L.) Cas.
Selenia lunaria D. & S. Cas.
Selenia bilunaria Esp. Bou.
Biston betularia (L.) Cas.
Peribatodes rhomboidaria D. & S. Cas.
Alcis repandata (L.) Cas.
Boarmia punctinalis Scop. Cas.
Ematurga atomaria (L.) Vil. Jou. [Lou. Bou.]
Bupalus piniaria (L.) Lou.
Cabera pusaria (L.) Cas.
Gnophos myrtillatus Thunb. f. *obfuscatus* Hübn.
Gnophos ambiguatus Dup. Bou. d.g.Pr. 1624.
Gnophos mucidarius Hübn. Cas. d.g.Pr. 1617.
Siona lineata Scop. Cas. Jou.
Chlorissa pulmentaria Guen. Ver.
Chlorissa cloraria Hübn. Jou. d.g.Pr. 1654.

ZYGAENIDAE

- Procris geryon* Hübn. Cas. d.g.Pr. 1620.
Procris statices (L.) Cas.
Zygaena purpuralis Brunn. Cas.
Zygaena trifolii Esp. ab. *orobi* Hübn. Jou.

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References

A fuller list of English articles on collecting in this region appeared in paragraph 1 of de Worms 1966. That article however omitted mention of Dufay's comprehensive Macrolepidoptera list (1961), a very thorough compilation rather than a report on a single season's visit, and on that account far more useful. It also gives a good bibliography. De Worms' articles, 1966 and 1971, dealt with visits, the latter a very short one, made a month later in the year than my own. In 1952 Bretherton, Ellison and Manley reported their three weeks' visit at roughly the same season as my own. I add a few recent French works which will be of interest, and are mentioned by me above, as well as check-lists, etc., referred to. But for the fuller list of earlier works reference to Dufay is recommended:

- Boursin, C. 1964. Les Noctuides Trifinae de France et de Belgique. *Bull. mens. Soc. Linn. Lyon*, **33**: 6.
- Bretherton, Ellison & Manley. 1952. Lepidoptera in the Eastern Pyrenees, 1951 (Porté-Puymorens and Vernet-les-Bains, June 30-July 19) and the Forêt de Rambouillet, near Paris (July 16 and 20). *The Entom.*, **85**: 1072, 1073, 197-204, 222-229. Sept. and Oct.
- Descimon, H. 1960. Note sur la répartition en altitude d' *Hamearis lucina* L. dans les Pyrénées. *Alexanor* **1**, 189-190.
- Dufay, C., 1961: Faune terrestre et d'eau douce des Pyrénées-Orientales. F. 6. Lépidoptères. Univ. de Paris. Lab. Arago, Banyuls-sur-Mer.
- Herbulot, C. 1961. Mise à jour de la liste des *Geometridae* de France. *Alexanor* **2**: 117-124, 147-154; *ibidem*, **3**: 17-24, 83-93.
- Higgins, L. G. & Riley, N. D. 1970. A field guide to the Butterflies of Britain and Europe. (Collins).
- Mazel, R. 1971. Contribution à l'étude biogéographique de *Cupido sebrus* Hübner. *Alexanor*, **7**: f. 1, p. 46.
- Oberthur, C. 1923. Catalogue des Lépidoptères des Pyrénées-Orientales. *Èt. de Lépid. comp.*, f. 11, pp. 9-70; f. 20, pp. 1-159.
- Real, P. 1962. Les Pyrénées-Orientales, refuge entomologique. *Ann. Scient. de l'Univ. de Besançon*, s. 2, Zoologie, f. 17, 97-109.
- Worms, C. G. M. de. 1966. The Eastern Pyrenees, July-Aug. 1965. *Ent. Rec.*, **78**: 1-8.
- ID. 1971. From the Alpes Maritimes to Albarracin. *ibid.*, **83**, 29-35.

Applied Ecology used against a Fly Pest Problem in Australia

Australian research entomologists are rebuilding an ecological chain in an attempt to overcome a fly-pest problem. Their aim is to introduce from abroad dung beetles which, in spite of their small size, are extremely efficient in getting rid of cattle dung where the bushfly (*Musca vetustissima*) and the buffalo fly of the north (*Haematobia exigua*) breed.

In most parts of the world the dung beetle to disperse the cattle dung is a native species, but not in Australia, for the local dung beetles have developed specialised characteristics. They work well in the hard round dung of Australian marsupials, but show little interest in the soft cattle dung because cattle are not Australian natives. The cattle imported from Asia brought the buffalo fly with them, and on the other hand, cattle brought from Europe left that pest's enemy at home. It will be seen that the buffalo fly is a misfit and does not legitimately belong to Australia.

As a result, cattle dung has been lying virtually undisturbed all over Australia, covering an estimated total area of 3,000,000 acres, with the serious disadvantages this can bring. The major effect has been the prevalence of the buffalo fly in northern Australia, where it has created a serious economic hazard for the cattle industry; the blood-sucking fly irritates the beasts to a point where they cannot eat, thus seriously affecting the